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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|---------------------|------------------|
| 10/619,648 | 07/14/2003 | Steven Robert Hetzler | ARC920030040US1 | 8642 |
| 55508 | 7590 | 11/09/2006 | EXAMINER | |
| JOSEPH P. CURTIN, L.L.C. 1469 N.W. MORGAN LANE PORTLAND, OR 97229-5291 | | | CHAUDRY, MUJTABA M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2133 | |

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/619,648 | | HETZLER ET AL. | |
| | Examiner | | Art Unit | |
| | Mujtaba K. Chaudry | | 2133 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicants' response was received September 10, 2006.

- Claims 1-6 and 10-12 stand rejected.
- Claims 7-9 remain objected to as allowable subject matter.
- Drawing correction accepted.
- Rejections under 35 USC 112 withdrawn.
- Amendments to specification accepted.
- Non-elected claims 13-20 need to be cancelled in subsequent communication.

Application pending.

Response to Amendment

Applicant's arguments/amendments with respect to claims 1-12 filed September 10, 2006 have been received. All arguments have been fully considered but are not persuasive. The Examiner would like to point out that this action is made final (See MPEP 706.07a).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). For example, Applicants contend the prior art does not teach, "...RAID 3+3 having a Hamming distance of 4..." Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The Examiner disagrees with the Applicant and maintains rejections with respect claims 1-6 and 10-12. All arguments have been considered. It is the Examiner's conclusion that claims 1-6 and 10-12, as presented, are not patentably distinct or non-obvious over the prior art of record. See office action:

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over King et al. (USPN 6530004).

As per claim 1, King et al. (herein after: King) substantially teaches a method and apparatus for dynamically expanding a storage system, particularly a RAID (Redundant Array of Independent Disks) set based storage system, while assuring data integrity during the expansion process. For example, redistributing of data in a data storage system. This embodiment of the method includes the steps of: identify data in a destructive zone of the storage system; migrating data before reaching the destructive zone from source storage devices to destination storage devices; copying data onto a number of backup buffers; mirroring data backed up in the copying

Art Unit: 2133

step onto free space in the storage system; migrating data backed up in the mirroring step to destination storage devices; repeating the steps of migrating, copying, and mirroring, until data that will be in the destructive zone is migrated out of the destructive zone; and migrating remaining data from the source disks onto the destination disk. Particularly, King teaches Figure 1 an array controller 106, a plurality of original disks N (analogous to data storage units) and a plurality of added disks M (analogous to check storage units).

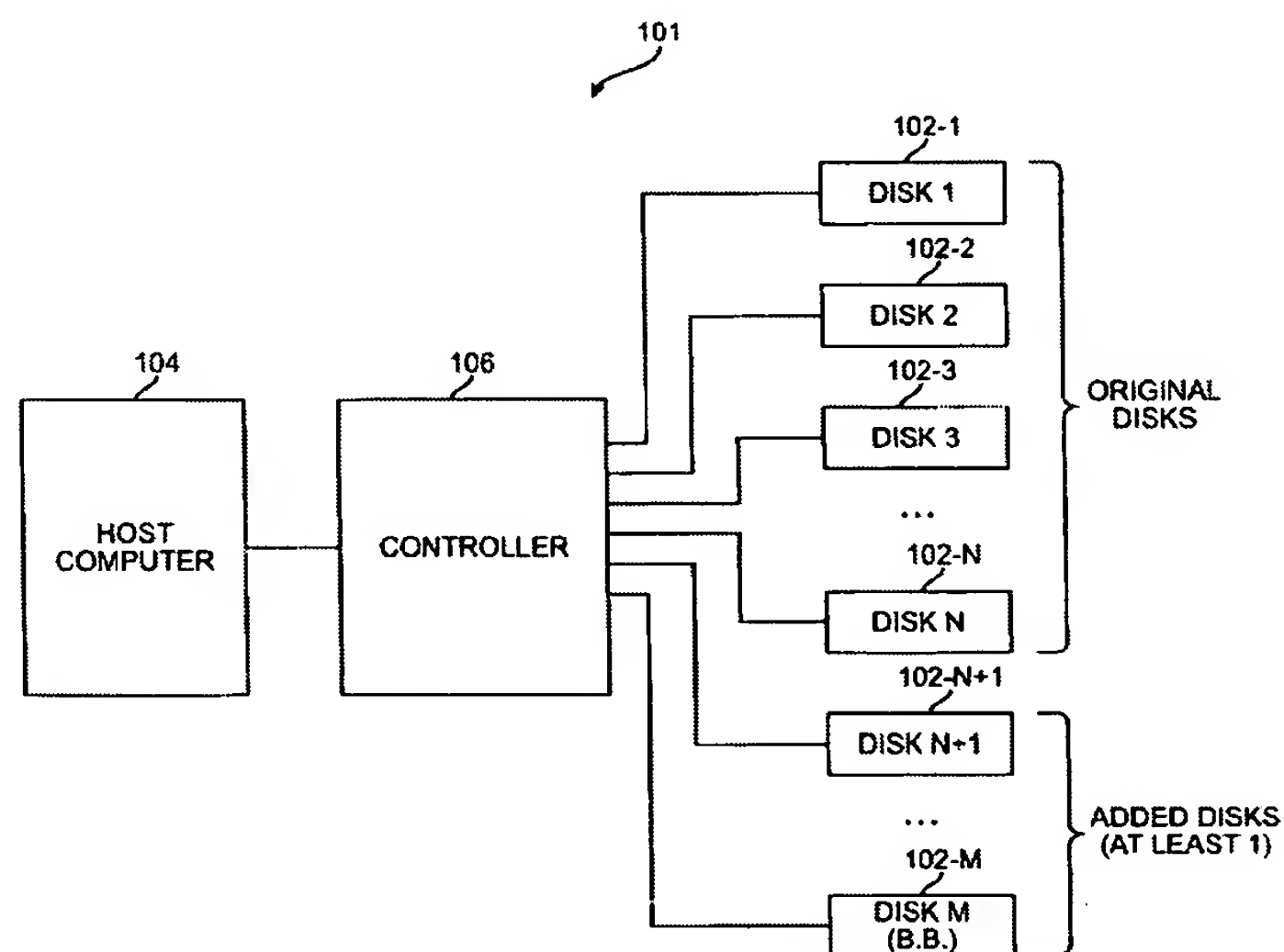


FIG. 1

King does not explicitly teach to have three storage units and three check units as stated in the present application.

However, the Examiner would like to point out that have exactly three storage units and three corresponding check units is a matter of obvious engineering design choice. Therefore it would have been obvious to limit the number of storage units and number of corresponding check units in King to three as is suggested in the present application. This would have been obvious since three is a number, which is included in a plurality as is taught by King. Further

Art Unit: 2133

more, having three corresponding check units would be efficient for the array controller to correct any erasures in the storage unit with the corresponding three check units.

As per claims 2-6, King substantially teaches, in view of above rejections, RAID 3 + 3 system. The Examiner would like to point out that it is well known in the art for data to stored in RAID to use some type of code such as symmetric Maximum Distance Code, a Winograd code, a Reed-Solomon code or an evenodd code, which are all known in the art of RAID systems.

As per claim 12, King substantially teaches, in view of above rejections, RAID 3 + 3 system. The Examiner would like to point out that the check units are used to recover any data stored in the data storage units that is lost.


Conclusion

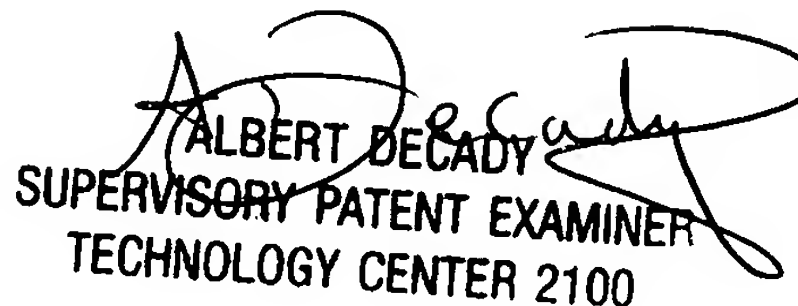
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiries concerning this communication should be directed to the examiner, Mujtaba Chaudry who may be reached at 571-272-3817. The examiner may normally be reached Mon – Thur 6:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Albert DeCady at 571-272-3819.


Mujtaba Chaudry
Art Unit 2133
November 2, 2006


ALBERT DECADY
SUPERVISORY PATENT EXAMINER
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